



SENFENG

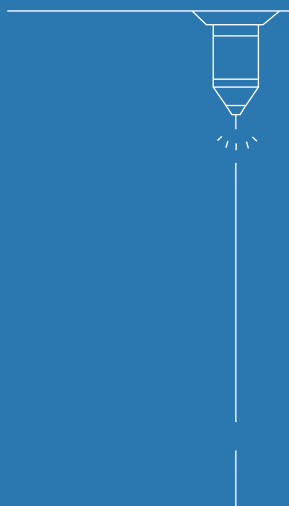
HOW TO SELECT YOUR WELDING MACHINES

www.senfenglaser.com



Provide Global Customers with Metal
Forming Automation Solutions

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Kinds of Welding Processes



Laser Welding

For its part, laser is adopted as heat source. Thanks to its deep penetration, high precision, fast speed, low heat input and well-shaped finished products, it has emerged as one of the most efficient welding processes all over the world.

Arc Welding

Arc welding uses electric arc as a heat source to locally melt metal workpieces and form permanent joints. It can offer manual arc welding, MIG/MAG, TIG, submerged arc welding and so on, so as to weld structural components made of steel, aluminum and titanium across a range of thicknesses.

Laser Filler Wire Welding

It carries out laser welding by using stepper- or servo-driven, additional axis, dual-driven wire feeding and its weld seams are well-adapted, high-strength and fully-formed.

Laser-arc Hybrid Welding

It has excellent performance and can weld thick sheets at high speed but with small deformation based on both laser energy (high-density energy, fast speed, deep penetration and small thermal deformation) and MIG high-pressure arc (high stability and ability of molten pool gap transition).



SENFENG Welding Technical Center

SENFENG, one of the earliest companies founding laser welding centers in China, is dedicated to the relevant R&D. Since the establishment, we always proceed from cutting-edge technologies and terminal customers while testing its materials required, welding patterns, processes and applications in various industries as well as practical feasibility. In addition to free proofing, technical verification and post-weld detection, we can also offer turnkey welding solutions to our cooperative partners, with the purpose of becoming internationally famous laboratory and pushing forward the entire laser welding industry.

Up to now, there have been 5 categories/10+ kinds of different models like handheld laser welding, robotic laser welding, robotic arc welding, laser-arc hybrid welding and automated welding machines. They are serving auto parts, rail transit, equipment manufacturing and medical devices, and taking a road of extensive industrialization.



SENFENG Welding Testing Laboratory

Until now, we have provided 1.5–20kW laser welding, arc welding, hybrid welding and automated welding machines. In doing so, customers from auto parts, sheet metal processing, new energy manufacturing, mechanical production and other sectors will enjoy the tailor-made welding service.

Metal proofing (0.3–20mm carbon steel, stainless steel, aluminum, galvanized sheet and copper) and welding process verification are also within our scope of services.

In the laboratory, a lot of post-weld testing devices are available, incl. tensile machine, mounting press, metallographic microscope, friction and wear tester, ultrasonic flaw detector, hardness tester and salt spray chamber. Moreover, its professional technicians have ability to test and evaluate welding processes in real time.

Laser-arc Hybrid Welding Machines

SF-LMW Series Laser-arc Hybrid Welding Machine

This machine consists of high-power laser generator, laser welding head, water chiller, high-negative-pressure dust removal system, arc welding machine (with special water chiller), robotic arc welding gun, weld seam tracking system, main control system and ground rail.

It is a combiner of laser and arc welding, which can weld one side and both sides of medium-thick sheet. In accompany with ground rack, its robot will work much faster and offer more stable welding quality.

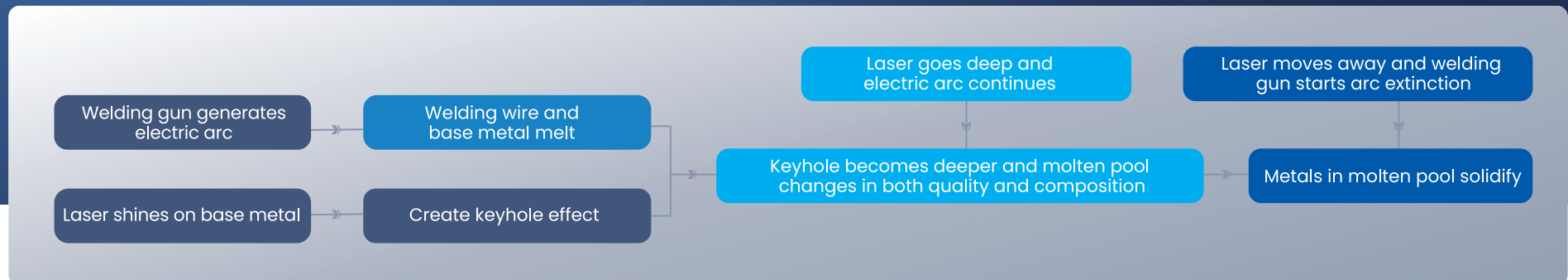
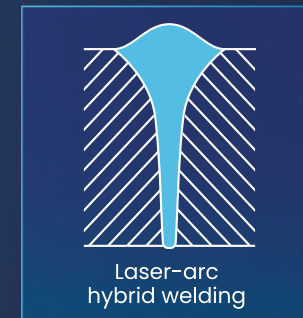
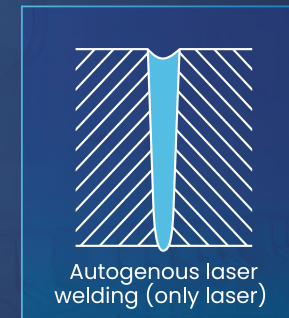
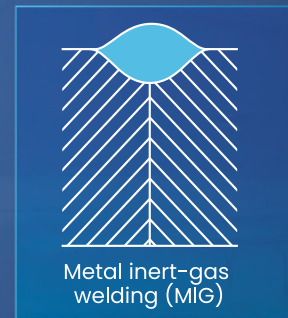
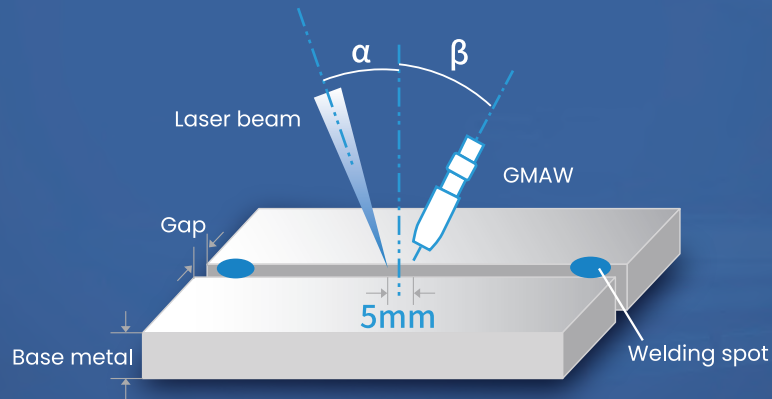
8 Competitive Strengths

- Lower the requirements for splicing
- Speed up the welding
- Save welding wire and related materials
- Offer online and offline positioning
- One-sided welding with back formation
- Work with high-precision stable robot
- Employ professional hybrid welding system
- Zero gap tracking for weld assembly



* Machine appearance, function description and technical parameters on this page are derived from SENFENG's Technical R&D Center based on our self-developed machines. For reference only, in kind prevail!

About Laser-arc Hybrid Welding



• Technical Principle

Utilize laser and electric arc as dual heat sources for coupling. The hybrid heat will act on workpieces to form weld seams.

• Technical Superiority

Thanks to their individual strengths, it can achieve 1+1>2, to be specific, not only fast welding speed and deep penetration offered by optical fiber lasers, but also excellent gap bridging ability featured by electric arc welding.

• Welding Ability

12kW lasers: carry out laser butt welding with full penetration for 6-14mm sheet

20kW lasers: carry out laser butt welding with full penetration for 6-20mm sheet

At a welding speed of 0.5-1.8m/min

Robotic Laser Welding Machines

SF-RW Series Robotic Laser Welding Machine

This machine, based on standard model, consists of robot (with its control cabinet and base), laser generator, water chiller, laser welding head, stepper wire feeder, anti-tangle device, safety protection devices, dust removal system, three-axis horizontal rotary positioner, main control system and so on.

Its protective chamber will cater to the European and American markets in safety because it can seal laser beams, splashes and smoke internally, so as to protect both workers and workshop, in addition, external interference is prevented and welding path becomes stabler to make laser welding much cleaner and faster.

**Special model
with protective chamber**



7 Competitive Strengths

- Highly integrated welding machine
- High degree of automation
- Fast in welding due to dual worktables
- Enable laser welding at large formats
- High-pressure dust removal for eco-friendly effects
- Anti-collision system available to make itself much safer
- Robot brand: FANUC, KUKA or other Chinese brands

Model	SF1500RW	SF2000RW	SF3000RW	SF6000RW
Max laser power	1500W	2000W	3000W	6000W
Robot armspan	2606mm			
EoAT payload of robot	45kg			
Repositioning accuracy	±0.06mm			
Laser welding head	3kW			6kW
Mode of cooling	Water cooling			
Dust removal system	Yes			
Optical protection	Safety light curtain			
Power supply	380V±10%, 50Hz±1			
Total power	28KVA	30KVA	35KVA	52KVA

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Robotic Laser Welding Machines

SF-RW Series Robotic Laser Welding Machine

This machine is composed of robot (with its control cabinet and base), laser generator, water chiller, laser welding head, stepper wire feeder, anti-collision system, anti-tangle device, wire touch initiation feature, main control system and other components.

The robot above can change laser generator power and wire feeding speed, start and stop the lasing. When you desire to adjust laser spot size, select its shape and change laser spot frequency, please take actions on laser welding head.

Laser beams, emitted by laser generator, will melt the workpiece after passing through laser welding head, then, form the specific molten pool. Thanks to anti-tangle device for robot wire cable, and co-axis and side-blowing devices, workpieces within its ability will be welded in multiple angles.

Standard model



5 Competitive Strengths

- Anti-collision system
- Wire touch initiation
- Red linear aiming beam
- Push-pull wire feeder (optional)
- Robot brand: FANUC, KUKA or other Chinese brands

Model	SF1500RW	SF2000RW	SF3000RW	SF6000RW
Max laser power	1500W	2000W	3000W	6000W
Robot armspan	1831mm			
EoAT payload of robot	25kg			
Repositioning accuracy	±0.02mm			
Laser welding head	3kW			6kW
Mode of cooling	Water cooling			
Power supply	380V±10%, 50Hz±1			
Total power	12KVA	15KVA	20KVA	35KVA

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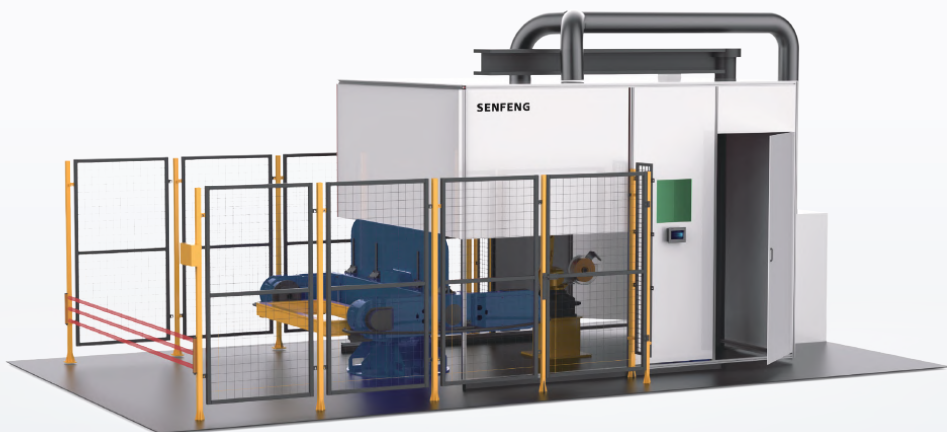
Robotic Arc Welding Machines

SF-RMW Series Robotic Arc Welding Machine

This machine, based on standard model, consists of robot (with its control cabinet and base), welding machine, water chiller, welding gun, wire feeder, anti-collision system, gun cleaner and so on. Weld seam tracking system is also provided as optional.

Its protective chamber will cater to the European and American markets in safety because it can seal arc light, splashes, smoke dust and noise internally, so as to protect both workers and workshop, in addition, external interference is prevented and consistency among workpieces becomes higher.

Special model with protective chamber



7 Competitive Strengths

- Low-spatter welding
- Anti-collision welding gun
- Inverter welding machine
- Content-rich welding process library
- Arc tracking feature
- Various welding processes available
- Robot brand: FANUC, KUKA or other Chinese brands

Model	SF-350RMW	SF-500RMW
Robot armspan	2032mm	
EoAT payload of robot	8kg	
Repositioning accuracy	±0.03mm	
MIG/MAG welding machine	350A/500A (as needed)	
Arc welding gun	Air/water cooling (as needed)	
Mode of cooling	Air/water cooling (based on welding gun)	
Power supply	380V±10%, 50Hz±1	
Total power	33KVA	43KVA
Robot	Chinese brand, or customize robots of other brands from other countries as needed	

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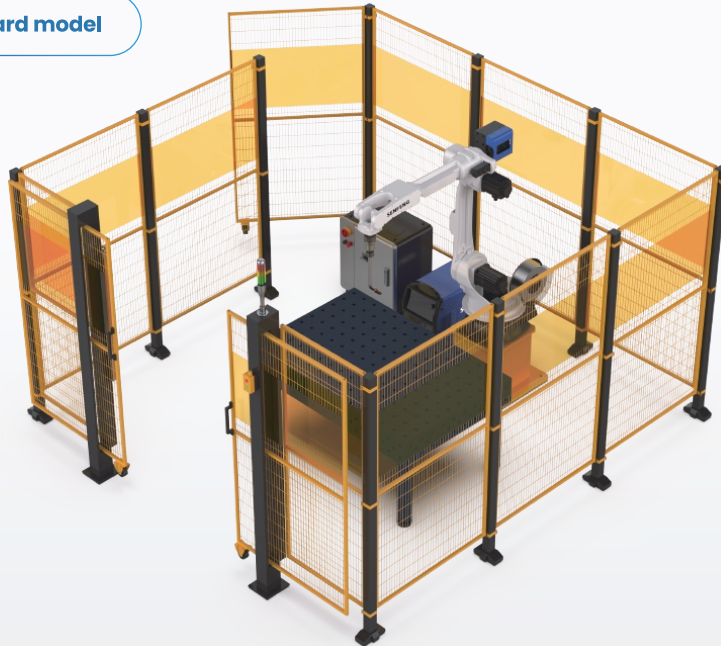
Robotic Arc Welding Machines

SF-RMW Series Robotic Arc Welding Machine

This machine consists of robot (with its control cabinet and base), welding machine, water chiller, welding gun, wire feeder, anti-collision system, gun cleaner and so on. Weld seam tracking system is also provided as optional.

The robot moves fast to weld thin sheet with ultra-low spatters and thick sheet stably. Besides the deeper penetration, low heat input and nice-looking fish scales, its weld beams look uniform and pleasing due to the smooth short-circuiting transfer technology.

Standard model



7 Competitive Strengths

- Low-spatter welding
- Anti-collision welding gun
- Inverter welding machine
- Content-rich welding process library
- Arc tracking feature
- Various welding processes available
- Robot brand: FANUC, KUKA or other Chinese brands

Model	SF-350RMW	SF-500RMW
Robot armspan	1440/2010mm	
EoAT payload of robot	10/12kg	
Repositioning accuracy	±0.05mm	
MIG/MAG welding machine	350A/500A (as needed)	
Arc welding gun	Air/water cooling (as needed)	
Mode of cooling	Air/water cooling (based on welding gun)	
Power supply	380V±10%, 50Hz±1	
Total power	20KVA	30KVA
Robot	Chinese brand, or customize robots of other brands from other countries as needed	

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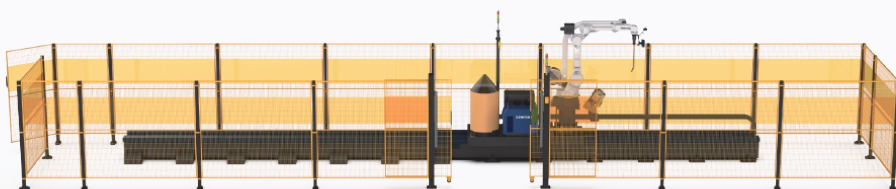
Robotic Arc Welding Machines

SF-RMW Series Teaching-free Robotic Arc Welding Machine

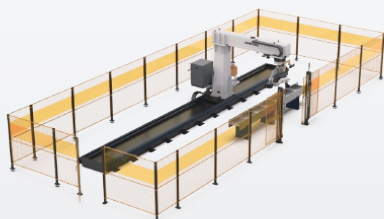
This machine is composed of robot (with its control cabinet), trolley, welding machine, water chiller, welding gun, gun cleaner, teaching-free system, ground rack, main control system and so on. Weld seam tracking system is also provided as optional.

With high degree of automation, multiple machines may be controlled by one unskilled worker. It has features of low-spatter welding, various welding patterns and content-rich arc welding process library. Thanks to teaching-free system, users will benefit from its advantages like integrated vision and control system, automatic recognition, zero learning curve operation and more.

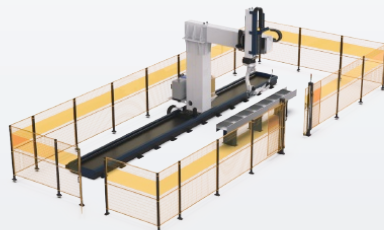
7-axis structure



8-axis structure(Optional)



9-axis structure(Optional)



11 Competitive Strengths

- Digital twin
- Automatic path planning
- Analog simulation
- Low-spatter welding
- Anti-collision welding gun
- Weld seam extraction and editing
- Arc tracking and multi-layer multi-pass welding
- Automatic obstacle avoidance
- Inverter welding machine
- Content-rich welding process library
- Photo modeling or 3D digital modeling via drawing import available, therein, the latter is compatible with formats like .ifc \.step \.stp

Model	SF-500RMW
Robot armspan	2010mm
EoAT payload of robot	12kg
Repositioning accuracy	±0.05mm
MIG/MAG welding machine	500A
Arc welding gun	500A (water cooling)
Length and stroke of ground rack	Effective stroke: 10.5m, total length: 12m
Power supply	380V±10%, 50Hz±1
Total power	35KVA

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This teaching-free model offers various functions:

TCP/zero position calibration of mechanical arm, workpiece initial positioning, weld seam extraction, editing, batch generation and positioning, path planning, analog simulation, arc tracking, continuous fillet weld, multi-layer multi-pass welding, parametric modeling of brackets, multi-station workcell control, workpiece model import, welding edge selection, welding/positioning pose update, welding process setup, etc.

There are two models at present, namely, FSWeld2800 and FSWeld3800:

FSWeld2800

FSWeld2800 is compatible with .ifc\ .step\ .stp format, namely, 3D digital model import.



Visual module: laser line camera

FSWeld2800 Intelligent Welding Control System

Name	Quantity
CypTronic_Pro-EW bus-based CNC host	1
WKB SW handheld welding box	1
BCW600 laser seam tracker	1
BCW020 adapter box	1
Wire rod, calibration part and fixture	1

FSWeld3800

FSWeld3800 is compatible with 3D digital model import and no-drawing reverse modeling.



Visual module: laser line camera and laser line stereo camera

FSWeld3800 Intelligent Welding Control System

Name	Quantity
CypTronic_Pro-EW bus-based CNC host	1
WKB SW handheld welding box	1
BCW600 laser seam tracker	1
BCW181P laser line stereo camera	1
BCW020 adapter box	1
Wire rod, calibration part and fixture	1

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Robotic Arc Welding Machines

SF-CMW Series Collaborative Robotic Arc Welding Machine

This machine is composed of robot (with its control cabinet), trolley, welding machine, water chiller (optional), welding gun, control system and so on. Arc tracking system is also provided as optional.

It is small in size and moveable, fitting for on-site welding of large workpieces, in other words, it has no limit to installation place and is widely used in segmented welding of ships and welding of bridge steel structures.



Constituent parts



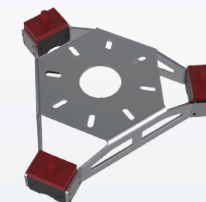
Movable trolley



Welding machine



Wire feeder



Magnetic base

2 Competitive Strengths

- Easy to operate due to hand-guiding teaching
- Small in size for easy movement

Model	SF350CMW	SF500CMW
Robot armspan	1077mm / 1460mm	
EoAT payload of robot	7kg(1077mm) / 6kg(1460mm)	
Repositioning accuracy	±0.02mm(1077mm) / ±0.05mm(1460mm)	
MIG/MAG welding machine	350A	500A
Mode of cooling	Air	water cooling
Power supply	380V±10%, 50Hz±1	
Total power	16.5KVA	25.5KVA

Notes: Please use air-cooling welding gun for 350A, or water-cooling gun for 500A.

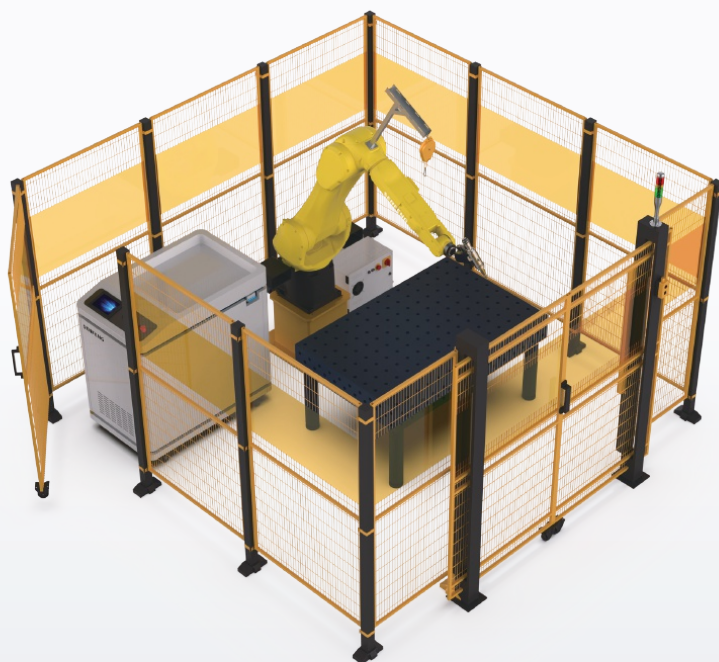
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Robotic Laser Cutting Machines

SF-RC Series Robotic Laser Cutting Machine

This machine is composed of robot (with its control cabinet and base), laser generator, water chiller, cutting head, anti-collision system, capacitive height control system, Z-axis lift unit, main control system, etc.

Because of 3D cutting head, anti-collision and anti-tangle systems, it can reset quickly in case of collision while cutting, moreover, wirecable tangling may also be avoided to the utmost when cutting in various angles.



4 Competitive Strengths

- Large-format cutting at high precision
- 360° anti-tangle feature
- Anti-collision function
- Take intelligent control

Model	SF1500RC	SF2000RC	SF3000RC	SF6000RC
Laser power	1500W	2000W	3000W	6000W
Robot armspan	1853mm			
EoAT payload of robot	25kg			
Repositioning accuracy	±0.02mm			
Laser cutting head	3kW			6kW
Mode of cooling	Water cooling			
Power supply	380V±10%, 50Hz±1			
Total power	12KVA	15KVA	20KVA	35KVA

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Handheld Laser Welding Machines

SF-HWM Series Intelligent Water-cooling Handheld Laser Welding Machine

This machine is outfitted with our dedicated laser generator, 4-in-1 metal welding gun, and other tailor-made devices like single-, dual- or three-wire feeder. Because of various safety protection systems, it is easy to carry out intelligent water-cooling welding.

It offers advantages such as full welding, fast speed, good quality, precise red light positioning, training-free feature, ease of operation, and CE certifications from SGS and UDEM.



6 Competitive Strengths

- Store and retrieve 49 kinds of parameters from process library
- Welding, cleaning, cutting and weld seam cleaning
- Reserve I/O interface for welding automation
- Dual-temperature dual-channel chiller system
- Offer temperature control, air pressure alarm, phase sequence protection and other safety functions
- Adopt special devices for welding aluminum, and customize the flat anti-spatter nozzles

Model	SF1500HWM	SF2000HWM	SF3000HWM
Diameter of feeding wire	0.8-1.6mm (standard)		0.8-2mm (standard)
Welding thickness	≤4mm	≤5mm	≤7mm
Welding gun and its weight	4-in-1 metal welding gun head SUP28T≤0.75kg		
Length of welding gun wire	10m (length of wire feeding tube: 5m)		
Total power	9kW	12kW	15kW
Scanning width-welding	0—8mm		
Scanning width-cleaning	F150-0~30mm / F400-0~60mm / F800-0~120mm		
Languages	19 kinds of languages like Chinese, English, Korean, Russian, Japanese, German, French, etc.		
Power supply	Three-phase 380V 50/60Hz (for 3000W model) or single-phase 220V 50/60Hz (for 2000W and below models)		

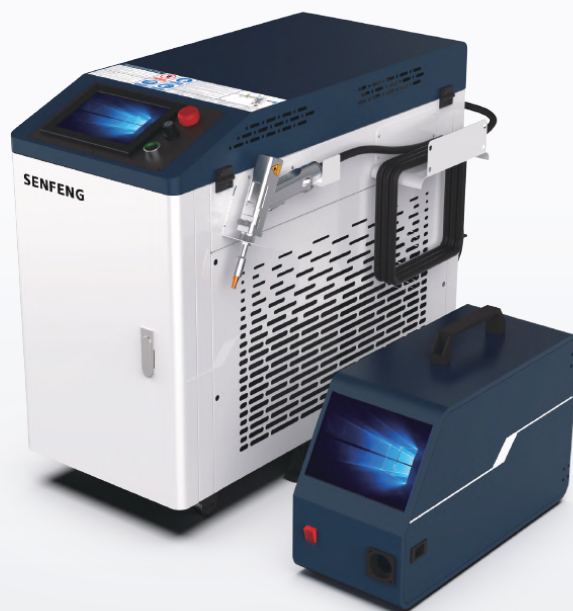
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Handheld Laser Welding Machines

SF-HW Series Professional Water-cooling Handheld Laser Welding Machine

This machine is outfitted with our dedicated laser generator, 4-in-1 plastic rubber welding gun, and other tailor-made devices like single-, dual- or three-wire feeder. Because of light welding gun and machine body, it is easy to carry out professional water-cooling welding.

When it comes to welding control system, it combines continuous, spot, fish-scale welding, as well as cutting together. In addition to user-friendly interface, the model also features training-free, CE and UDEM certifications.



6 Competitive Strengths

- Easy to get started even for green hands
- Always keep stable because of integrated plastic rubber welding gun
- Welding, cleaning, cutting and weld seam cleaning
- Store and retrieve 49 kinds of parameters from process library
- Dual-temperature chiller system
- Adopt special devices for welding aluminum, and customize the flat anti-spatter nozzles

Model	SF1500HW	SF2000HW	SF3000HW
Diameter of feeding wire	0.8-1.6mm (standard)		0.8-2mm (standard)
Welding thickness	≤4mm	≤5mm	≤7mm
Welding gun and its weight	4-in-1 plastic rubber welding gun head SUP23T≤0.7kg		
Length of welding gun wire	10m (length of wire feeding tube: 5m)		
Total power	9kW	12kW	15kW
Scanning width-welding	0—8mm		
Scanning width-cleaning	F150-0~30mm / F400-0~60mm / F800-0~120mm		
Languages	19 kinds of languages like Chinese, English, Korean, Russian, Japanese, German, French, etc.		
Power supply	Three-phase 380V 50/60Hz (for 3000W model) or single-phase 220V 50/60Hz (for 2000W and below models)		

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Handheld Laser Welding Machines

SF-S Series Intelligent Air-cooling Handheld Laser Welding Machine

We are providing users with handheld laser welding machines that have smaller size, lighter weight and higher performance, and redefining the air-cooling laser welding machines.

Its self-developed laser generator makes the machine work for a long time by right of superior resistance to high temperature. Such dual concentric knob is mainly used for taking smart control of swing laser power and width. The ergonomic laser welding gun weighs only 0.7kg and features welding, cleaning, cutting and weld seam cleaning, as well as SGS and CE certifications.



6 Competitive Strengths

- Easy to move due to small size and light weight
- Reserve I/O interface for welding automation
- Create uniform and pleasing weld seams
- Use intelligent air-cooling heat system
- Welding, cleaning, cutting and weld seam cleaning
- Adopt air-cooling plastic rubber welding gun that has dual knob and tailor-made dashboard interface

Model	SF3S	SF4S	SF5S
Adjustable range of laser power	10%—100%		
Diameter of feeding wire	0.8-1.6mm (standard)		
Net weight	40kg	45kg	50kg
Packaging size	870*520*960mm		
Welding thickness	≤3mm	≤4mm	≤5mm
Length of welding gun wire	5m (length of wire feeding tube: 5m)	7m (length of wire feeding tube: 5m)	7m (length of wire feeding tube: 5m)
Weight of welding gun	≤0.7kg		
Total power	3kW	4.5kW	5.5kW
Length of main power cable	5m		
Languages	Chinese, English, Korean, Russian, Japanese, German, French, etc.		
Power supply	Single-phase 220V±10%, 50/60HZ		

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Handheld Laser Welding Machines

Other Configurations and Protective Articles



Protective Chamber

A safety helper special for handheld laser welding machines

- Its core purpose is to seal off the scattered high-energy laser, splashes, fumes and arc light and protect workers from eye injuries or scorching.
- Meanwhile, it can allow for workshop purification and emergency stop in accompany with forced fume extraction, dust removal and safety interlocks, in this way, both workers and surrounding personnel will be protected well. Moreover, welding quality is about to raised due to the better on-site management.



Nitrogen Generator

A money-saving helper special for handheld laser welding machines

- 1 nitrogen generator can serve 2 laser welding machines (each needs at least 2 bottles of nitrogen per day) simultaneously. The average market price per bottle is about CNY 50, so it can save CNY 200 per day. If it works for 200 days a year, it will save a total of CNY 40,000.
- With a lifespan of over 3 years, the total cost savings certainly exceed CNY 120,000.



Protective Articles

A protection helper special for welders

- CE-compliant protective mask
190-400nm OD6+ CE / 800-1100nm OD6+CE
- Laser-resistant fireproof protective clothing
- CE-compliant protective helmet
950-1100nm OD8+ / DIN4 950-1100nm DLB7+ / IR LB8 LP S CE
- Wear-resistant heat insulation protective gloves
- CE-compliant protective glasses
(900-1100nm OD6+CE)

Multiple Modular Combinations

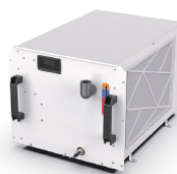
Devices below can be combined at will to realize different welding types and meet users' diversified demands. Meanwhile, SENFENG Welding Technical Center will continue to expand module library and upgrade our welding machines to always keep pace with cutting-edge welding processes.



Robot (from different brands)



High-negative-pressure
dust removal system



Water chiller



Laser welding head



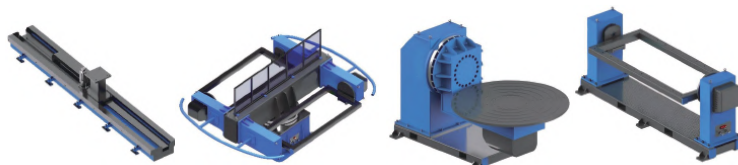
Wire feeder



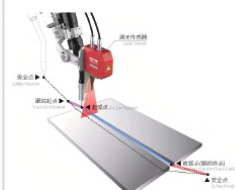
Protective fence



Laser generator



Positioner



Weld seam tracking



Protective chamber



MAG/MIG welding machine



Water chiller



Wire feeder



3D flexible table



Optical grating

Automated Welding Production Lines



Laser Welding Production Line for Wheel Hubs



3D 8-Axis Robotic Welding Production Line for Auto Door Panels



Fully-automatic Tube Mill Welding Line

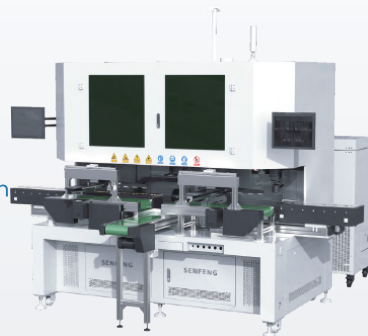


Integrated Assembling-Welding-Straighting Machine



Automated Welding Production Line for Auto Parts

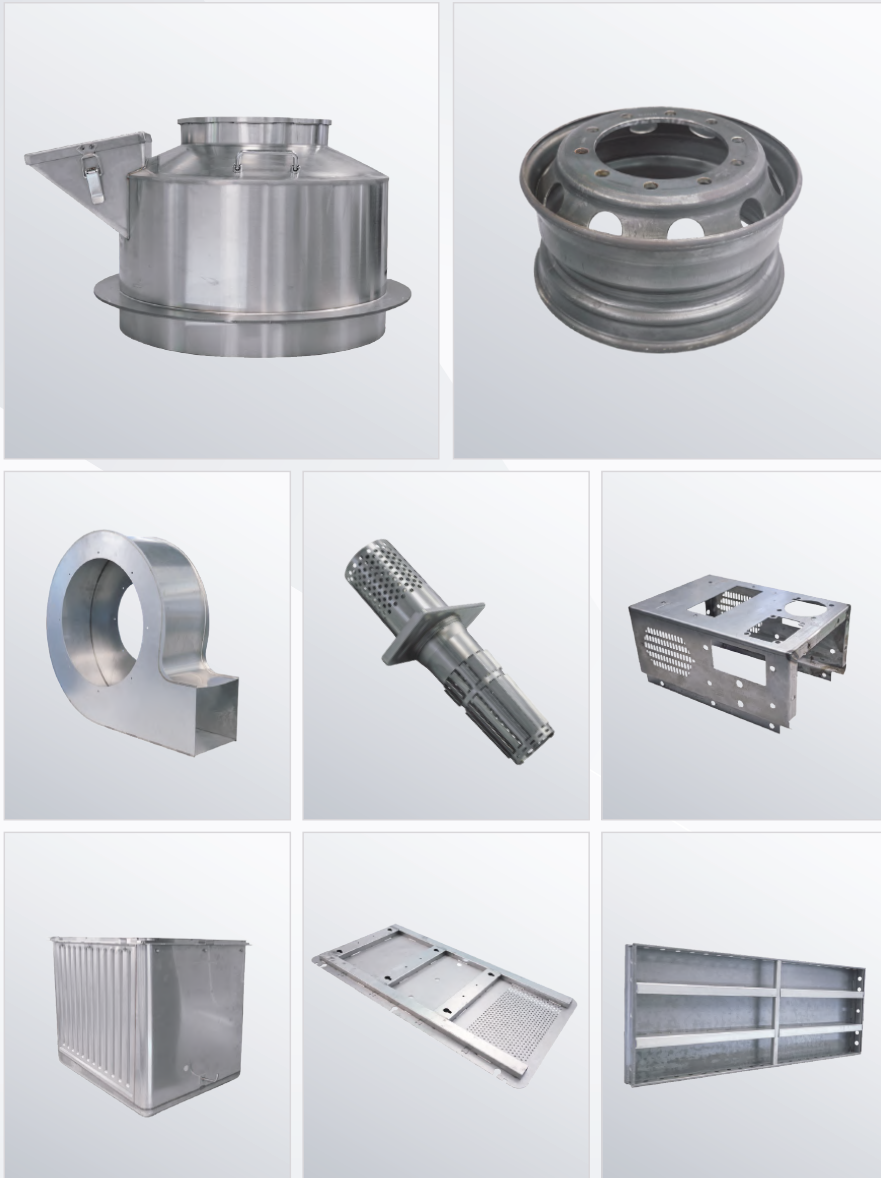
Automated Laser Welding Production Line for New Energy Batteries



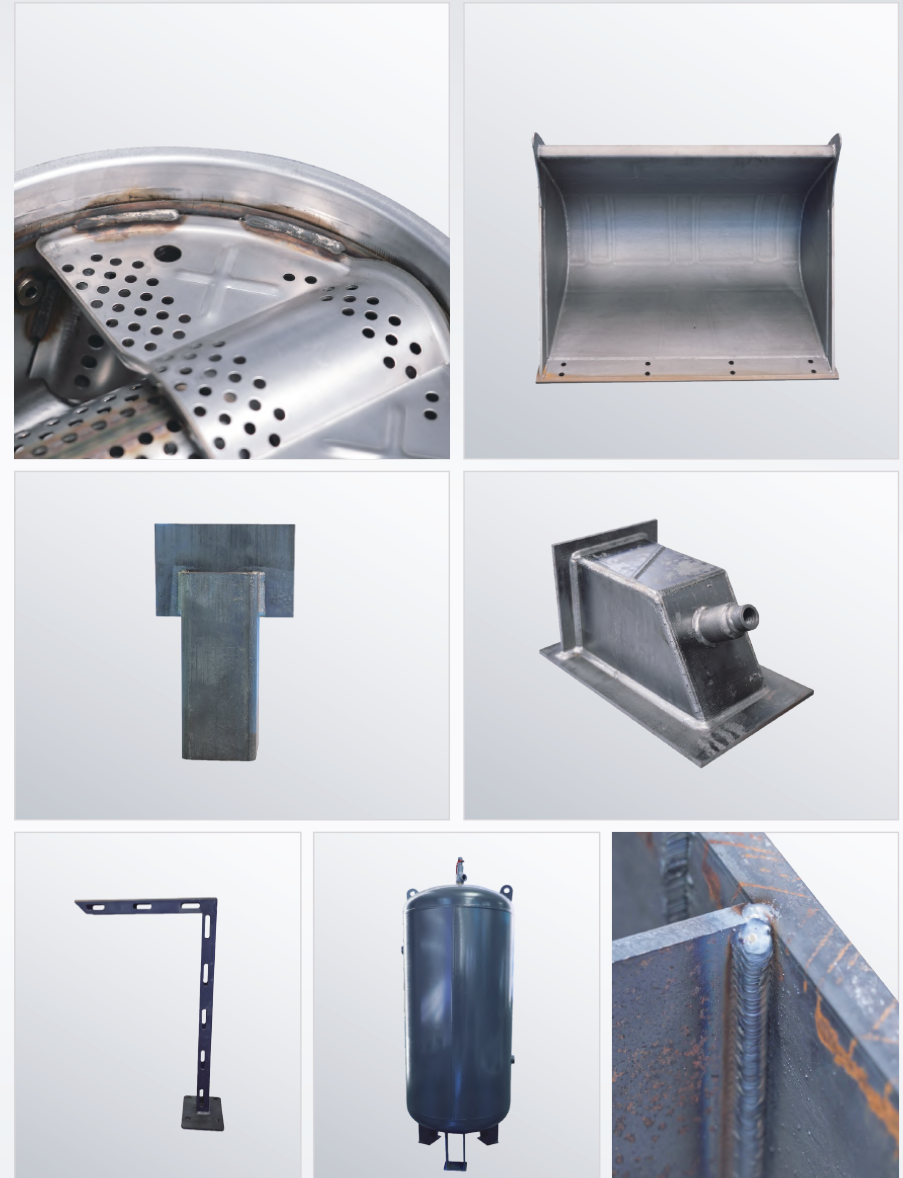
Dedicated Arc Welding Automation System for Transformers



Laser Welding Samples



Arc Welding Samples



After-sales Service

Quick-response Service



High Efficiency

Answer your repair calls for 24*7*365 days

Technical engineers can diagnose your machine within 10min, make repair plans within 1h and dispatch to your location within 1 workday after receiving your request for repair



Craftsmanship Spirit

Provide custom-made solutions and make well-targeted plans as the case may be

Engineer certifications: Our all engineers take appointment with certificate after strict training

Train how to fix your FAQ: Collect FAQ and ask the certified engineers to train relevant customers

Online one-to-one guidance: Senior engineers guide customers to get problems solved through phone, video or other online means

One time is enough: Commission the machine and settle similar matters only once



For Your Peace of Mind

Pre-arrival service: Train in technical theory, actual operation and troubleshooting at great length

Regular service: Reminder of maintenance, door-to-door and sales promotion service

Value-added service: Software & hardware upgrade, finance leasing and further extension of warranty period



Start VR Tour

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Note: The pictures and parameters in the album are for reference only, and the actual product shall prevail. Printed in Mar. 2026.